

Title (en)

Rare earth element-doped multiple-core optical fiber, method for fabricating the same, and optical amplifier using the same

Title (de)

Optische Mehrkernfaser mit Dotierung aus seltenen Erden, Herstellungsmethode dafür und optischer Verstärker mit dieser Faser

Title (fr)

Fibre optique à coeur multiple dotée de terres rares, méthode de fabrication et amplificateur optique utilisant celle-ci

Publication

EP 0695003 B1 19970910 (EN)

Application

EP 95303954 A 19950608

Priority

JP 17536694 A 19940727

Abstract (en)

[origin: EP0695003A1] At least three elementary optical fibers are covered with a jacket layer. Each of the elementary optical fibers has a core of a first refractive index doped with at least one rare earth element and Al, and a cladding layer of a second refractive index lower than the first refractive index for covering the core. A value of $(1+2t/D_w)$ is ranged to be 1.1 to 2.5, where t is a thickness of the cladding layer, and D_w is an outer diameter of the core, and a doping amount of Al is at least 1 weight %. The at least three elementary optical fibers are inserted into a jacket tube, and the elementary optical fibers and the jacket tube are heated to be welded at contact surfaces thereof by vacuum-drawing air from interstices of the elementary optical fibers and the jacket tube. Thus, a preform is obtained, and the preform is heated to be drawn. Consequently, a rare earth element-doped multiple-core optical fiber is fabricated. The rare earth element-doped multiple-core optical fiber is used to amplify a signal light to be propagated therethrough by receiving an excitation light. <MATH>

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IPC 8 full level

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Cited by

US6154594A; EP0889335A3; CN102096147A; CN102262263A; DE19736155A1; DE19736155C2; EP1061385A4; EP0893714A1; FR2766583A1; US6097868A; GB2310506A; FR2745392A1; GB2310506B; EP2259106A1; US7813608B2; US8033142B2; WO2005102946A1; WO9905550A1; WO0203510A1; US6272155B1; US8132429B2; EP1869513B1

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